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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/501,356

02/11/2005

Henri Arnold De Bruyn

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01/29/2009

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EXAMINER

THEODORE, MAGALI P

ART UNIT

PAPER NUMBER

1791

MAIL DATE

DELIVERY MODE

01/29/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/501,356	<b>Applicant(s)</b> DE BRUYN ET AL.	
	<b>Examiner</b> Magali P. Théodore	<b>Art Unit</b> 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 11/12/2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,2,4,5,8,9,12-20,40,41,43,44,47,48 and 51-60 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,5,8,9,12-20,40,41,43,44,47,48 and 51-60 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                      |                                                                   |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____                                                          | 6) <input type="checkbox"/> Other: _____                          |

### DETAILED ACTION

1. Applicant's amendment filed November 12, 2008 was received.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

### ***Claim Rejections - 35 USC § 103***

3. Claims 1-2, 4-5, 8-9, 12-20, 40-41, 43-44, 47-48 and 51-60 are rejected under 35 U.S.C. 103(a) as being unpatentable over de Bruyn (WO 00/40669) in view of Markessini et al. (US 4,886,854), henceforth "Markessini."

Regarding **claims 1, 4, 40 and 43**, de Bruyn discloses a method of preparing a settable binder composition for treating particulate material to form a solid aggregate matrix by mixing a urea formaldehyde precondensate (p 1 ln 11-14, p 2 ln 1-2), a polar solvent (water, p 5 ln 19-21), additional urea (p 1 ln 15-16) and an acid (citric acid, p 3 ln 8-10), mixing resulting the binder composition with the particulate and allowing the binder to set (soil, p 7 ln 11-12). The binder's end pH is "most preferably between 3.5 and 5" (p 4 ln 5-6), well within the range of 2.0 to 5.3 recited by the claim. As de Bruyn shows in Example 3 (p 10 ln 22 - p 11-16), the binder's setting time is inherently determined by the end pH. Of two binder compositions that vary only in their acidity, the more acidic "third mixture," with an end pH of 3.85, sets in 65 minutes (p 11 ln 5-7, 10-11), in contrast to the more basic "second mixture" which has a pH of 5.45 and sets in 1400 minutes (p 11 ln 3-4, 9-10).

Art Unit: 1791

De Bruyn does not teach including a sugar in the binder composition. However, Markessini teaches combining glucose, fructose, sucrose or a mixture thereof (col 2 ln 60-64) with a urea and formaldehyde (col 2 ln 9-11) to make a binding composition that is safer for the environment and for workers than resin (col 1 ln 13-19). Therefore it would have been obvious to one of ordinary skill in the art to add glucose, fructose, sucrose or a mixture thereof to the urea-formaldehyde binder taught by de Bruyn because Markessini teaches this combination as a safe and effective substitute for resin.

Regarding **claims 2 and 41**, de Bruyn teaches that the polar solvent is water (p 5 ln 19-21).

Regarding **claims 5, 8-9, 44 and 47-48**, de Bruyn teaches using an anionic bitumen emulsion as a binding promoter (p 5 ln 7-8, p 15 ln 7-8, 20-21).

Regarding **claim 12**, de Bruyn teaches adding silicones, silanes, oils, anti-corrosion agents, ultraviolet light blocking agents, biocides, pH buffers, cement, ammonia, ammonium salts, plasticizers (p4 ln 9-13) or phenols (p 4 ln 18) to the binding mixture before setting.

Regarding **claims 13 and 52**, de Bruyn teaches that the plasticizers may be phthalates, hydrocarbons, acetates or glycols (p 4 ln 15-16).

Regarding **claims 14 and 53**, de Bruyn teaches that the ultraviolet light blocking agents may be organic phenols, phosphates or inorganic oxides (p 4 ln 18-19).

Regarding **claim 15**, de Bruyn teaches that the inert particulate may include any combination of natural or synthetic glass-, steel-, carbon- or polymeric fibers (p 4 ln 21-

Art Unit: 1791

22), sand, soil, gravel, clay, silica, particulate ore, rubber, stones, pebbles, partly bound cementitious masses, grass, slag, waste dump material or coal (p 4 ln 25 - p 5 ln 2).

Regarding claim 16, 36 and 54, de Bruyn teaches that the end ratio of formaldehyde to urea in the binder is "between 3:1 and 1:1, and most preferably between 2:1 and 1:1" (p 2 ln 13-16). These ranges cover that cited by the claim, 1.5:1 to 2.5:1.

Regarding **claim 18**, de Bruyn teaches that aggregate matrix maybe compacted into a mold before setting (p 7 ln 5).

Regarding **claims 19-20** and **56-57**, de Bruyn teaches that the acid is citric acid (p 3 ln 8).

Regarding **claims 58**, de Bruyn teaches treating a body of soil by spraying the binder onto the soil and letting the binder seep in (p 5 ln 12-13). The product made according to the combined disclosures of de Bruyn and Markessini and the instantly claimed product appear to be essentially the same, made of the same components, and used in the same manner. In the event that any differences can be shown between the product of the product-by-process claim 60/1 and the product taught by the prior art, such differences would have been obvious to one of ordinary skill in the art as a routine modification of the product in the absence of unexpected results. See *In re Thorpe*, 227 USPQ 964 (Fed. Cir. 1985). Also, when the examiner has found a substantially similar product as in the applied prior art, the burden of proof is shifted to applicant to establish that their product is patentably distinct and not the examiner to show the same process of making. *In re Brown*, 173 USPQ 685 and *In re Fessmann*, 180 USPQ 324.

Regarding **claims 59**, de Bruyn teaches treating a body of soil by spraying the binder onto the soil and letting the binder seep in (p 5 ln 12-13).

Regarding claim **60/1**, de Bruyn teaches a wide range of artifacts made by spraying the binder on bodies of soil, among them roads, building foundations and water storage devices (p 7 ln 13-25). The product made according to the combined disclosures of de Bruyn and Markessini and the instantly claimed product appear to be essentially the same, made of the same components, and used in the same manner. In the event that any differences can be shown between the product of the product-by-process claim 60/1 and the product taught by the prior art, such differences would have been obvious to one of ordinary skill in the art as a routine modification of the product in the absence of unexpected results. See *In re Thorpe*, 227 USPQ 964 (Fed. Cir. 1985). Also, when the examiner has found a substantially similar product as in the applied prior art, the burden of proof is shifted to applicant to establish that their product is patentably distinct and not the examiner to show the same process of making. *In re Brown*, 173 USPQ 685 and *In re Fessmann*, 180 USPQ 324.

Regarding **claim 60/59**, de Bruyn teaches a wide range of artifacts made by spraying the binder on bodies of soil, among them roads, building foundations and water storage devices (p 7 ln 13-25).

12. Claims 6-7 and 45-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over de Bruyn as applied to claims 5 and 44 above, and further in view of Terpstra et al. (US 5,523,049).

Art Unit: 1791

Regarding **claims 6-7** and **45-46**, de Bruyn does not teach using a complex fatty acid derived from the oxidation of vegetable sugars as a binding promoter. However, Terpstra teaches adding humic acid to a urea-formaldehyde binder to "achieve higher loading of the powder particles in the binder" (col 4 ln 22-29). Therefore it would have been obvious to one of ordinary skill in the art to add humic acid to the binder taught by de Bruyn because Terpstra teaches that humic acid helps integrate the particles with the binder.

13. Claims 10-11 and 49-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over de Bruyn as applied to claims 5 and 44 above, and further in view of Prather (US 4,376,088).

Regarding **claims 10-11** and **49-50**, de Bruyn does not teach using a surfactant as a binding promoter. However, Prather teaches adding the dodecylbenzene sulfonic acid (col 2 ln 5, col 7 ln 49, ln 59) to a binder composition (col 1 ln 64-68) to promote uniform binding by disperse the binding agent in an aqueous solution (col 5 ln 17-26) and later to facilitate separation of the shaped article and the shaping means (col 1 ln 46-51). Therefore it would have been obvious to one of ordinary skill in the art to add dodecylbenzene to the binder taught by de Bruyn because Prather teaches using dodecylbenzene sulfonic acid both to as a surfactant and as a release agent.

***Response to Arguments***

4. Applicant's arguments filed December 17, 2008 have been fully considered but they are not persuasive.

5. Applicant argues that adding sugar to the binder produces an unexpected result.

The examiner has interpreted this argument to refer to Applicant's statement in the specification that, "surprisingly," the addition of sugars enhances binding [0087]. In response to Applicant's argument, the examiner did not find evidence in the specification to indicate that Applicant's discovery truly was an unexpected result.

Furthermore, Applicant's own findings or experience of surprise do not lessen the value of Markessini's teachings as showing what would have been obvious to one of ordinary skill in the art. The fact that Applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

Applicant argues that since Markessini is drawn to binding lignocellulosic matter, it would not have been obvious to someone treating particulate to turn to Markessini for guidance. In response to Applicant's argument, the wood chips taught by Markessini are particles (woodchips, col 4 ln 3). Both de Bruyn (the primary reference) and Markessini using urea-formaldehyde compositions to bind particulate matter. It would have been obvious to someone using urea-formaldehyde binders with particulate to be aware of and take guidance from the work of someone else using urea-formaldehyde binders with particulate, even if the particles were different.



Applicant argues that Markessini does not explain the role of sugar in the binder or by what mechanism sugar makes the binder safer. In response to Applicant's argument, though Markessini does not explain the sugar's chemical activity, Markessini specifies that recipe requires either a carbohydrate or a lignosulfonate and that the carbohydrate may be a sugar. A more detailed explanation is not needed to show that the use of sugar to make a safer urea-formaldehyde binder would have been known to one of ordinary skill in the art.

### ***Conclusion***

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Art Unit: 1791

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Magali P. Théodore whose telephone number is (571) 270-3960. The examiner can normally be reached on Monday through Friday 9:30 a.m. to 6:00 p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina A. Johnson can be reached on (571) 272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Magali P. Théodore/  
Examiner, Art Unit 1791

/Christina Johnson/

Supervisory Patent Examiner, Art Unit 1791

Application/Control Number: 10/501,356  
Art Unit: 1791

Page 10